



# OBSERVATIONS

ON THAT

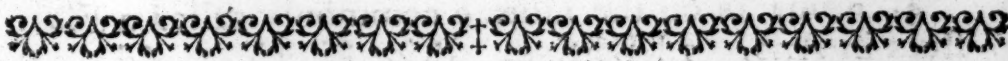
DISORDER

OF THE

CORNER of the EYE,

COMMONLY CALLED

Fistula Lachrymalis.



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By *PERCIVALL POTT*,  
Senior SURGEON to *St. Bartholomew's-Hospital*.

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*Neque enim credunt posse eum scire quomodo morbos curare  
conveniat, qui unde hi sint ignoret; eum vero recte curaturum,  
quem prima origo causæ non fefellerit.*

A. CORN. CELSUS.

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*noster Row*. M. DCC. LXIX.

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T H E  
P R E F A C E.

**B**Y frequently conversing with some of that part of the profession who come to London to attend the Hospitals, and to improve themselves in the Art of Surgery, it has appeared to me that the *FISTULA LACHRYMALIS*, though a very common disease, is one with which many of them are very little acquainted, either with regard to its cause, seat, or method of cure. Some are totally ignorant of every  
A thing

thing relating to it, others who have an imperfect idea of its nature, and seat, are yet much at a loss how to vary the method of treating it according to its different states and circumstances; upon which distinction the probability of a cure does often in great measure depend; for if those means which are only proper in one state of the disease are used in another, the patient will be fatigued to no purpose, and the surgeon by being frequently disappointed will be inclined to think those cases incurable, which have only failed through his own mismanagement.

There is hardly any surgical disorder which requires a more close

re-



regard to all its appearances and variations than this does ; and whoever expects to conduct it successfully, must attend to it constantly : this is, perhaps, the great reason why it is so little understood ; the object is too minute, and the process often too long to engage the attention ; besides which, it hardly comes under the name of an operation, the great and almost only object which they who come hither from the distant countries have in view ; the operative part of surgery is what they have seen the least of, and therefore they are the more desirous of becoming acquainted with it : this desire is a very laudable one, and ought certainly to be encouraged,

ged, but still the operative part of surgery is far from being the whole of it; and I cannot help thinking, that by attending a little more to what is called common or practical surgery, our art might still be considerably improved, practitioners rendered more expert, and mankind much benefited.

The merely curing diseases is not all; that was done (sooner or later) while surgery and anatomy were in their most imperfect state, and while every branch of medicine laboured under many inconveniencies which are now happily removed; but the different methods in which surgical disorders are treated, or their  
cures



cures attempted, will make so considerable a difference in the confinement and sufferings of the patient, as to be very well worth attending to.

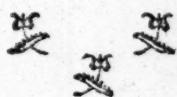
It may possibly be thought foreign to my present purpose, but I cannot omit this opportunity of adding a few words on a subject which appears to me highly deserving of some notice, as its influence may be very extensive and very prejudicial ; it is the false idea which the by-standers at an operation generally have of chirurgic dexterity ; to which word they annex no other idea than that of quickness. This has produced a most absurd custom of measuring the motion of a surgeon's

geon's hand, as jockeys do that of the feet of a horse, viz. by a stop-watch ; a practice which though it may perhaps have been encouraged by operators themselves, must have been productive of most mischievous consequences. *Tute et celeriter* are both very proper characteristics of a good chirurgic operation ; but *tute* stands as it should do, in the first place, and the patient who suffers the smallest injury from the hurry of his operator has no recompence from the reputation which the latter obtains from the by-standers. In most of the capital operations unforeseen circumstances will sometimes occur, and must be attended to ; and he, who without giving  
unneces-



unnecessary pain from delay, finishes what he has to do in the most perfect manner, and the most likely to conduce his to his patient's safety, is the best operator.

I have endeavoured to make the following tract as plain and as intelligible as I can ; and if it should appear prolix to those who are already acquainted with the subject, I must beg leave to observe, that it was not written for their information ; but if any of those who were unacquainted with it before should from hence gain any useful knowledge, my end will be answered, and I shall be very much pleased.



James H. ...

where he has been for the last ...

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OF THE  
FISTULA LACHRYMALIS.

## S E C T. I.

**T**HE antient writers were in general so little acquainted with the anatomical structure of the parts concerned in this disease, that both its cause, and seat, have been very erroneously represented by most of them; other disorders, very different both from this and from each other, have been confounded under the same general appellation, and the means made use of toward obtaining a cure, being adapted to such misconceptions, were rough, painful, and most commonly ineffectual.

The fluid which perpetually moistens the eye, was supposed to be secreted by that  
B small

small eminence in the inner angle, now called the caruncle, and to flow from thence upward through the puncta lachrymalia \* . The caruncle was by many thought to be the seat of the disease in question, which was said to be produced, either by a defluxion from the brain † on this part, or by an abscess formed within the body of it; or by a lodgment of the tears, become acrid and corrosive in consequence of such stag-

\* Fallopius, who has very accurately described the puncta lachrymalia, sacculus, and duct, as well as the disease, has yet fallen into this common error. “ Ad oculos ipsos ex faucibus egrediens venio, in quibus primum prætermisere anatomici duo foramina parva in angulo interno posita, quarum unum est in palpebrâ superiori, alterum in inferiori, in viventibus adhuc hominibus, si quis inspicere voluerit apparentia, quæ foramina habent meatus qui sub carunculâ encanthidos vel epicanthidos dicta uniuntur in quendam communem sinum in narium cavitatem desinentem per canalem proprium in osse squamoso, quod internum angulum occupat insculptum. “ Per hos meatus major lachrymarum pars ut ego in flebus mulierum observavi, ad oculos emanat.”

FALLOPIUS.

Non enim os solummodo cariosum, verum etiam glandula ita erosa erat, ut quotiescunque puer ploraret lachrymæ per ipsam fistulam copiosè extillarent.

HILDANUS.

† Fistula lachrymalis fit ex humorum decursu, qui currunt ad lachrymalis angulum juxta nasum, nec propter eorum multitudinem, et grossitiem possunt exire, &c. hi autem morantes ibi diutius corrumpuntur, et locum ulcerant. LANFRANC.

Ægy-



stagnation † ; while others looked upon it as a kind of encysted tumor. The swelling in the inner corner of the eye, the frequently-attendant ophthalmia, the involuntary flux of serum down the cheek, the excoriation of the eye-lid, and the discoloured discharge upon pressure, strengthened their opinions, and confirmed their prejudices.

They who supposed it to be caused originally by a defluxion of the inflammatory kind, tending to produce an abscess, had recourse at first to those general methods and means which were thought most likely to prevent such consequence : these not answering, they proceeded to open the sup-

B 2

posed

*Ægylops est tumor abcessorius inter majorem angulum, et nares proveniens. PAULUS.*

† At the great corner of the eye there is a glandule made for receiving and containing the moisture which serves for lubricating the eye ; this glandule sometimes, by a sanguine or pituitous defluxion falling violently from the brain, swells and impostumates and ulcerates, &c. AMB. PAREY.

*Hæc caruncula ab acrium humorum affluxu turget nonnunquam intumescit, et abscedit ulceraturque, ulcere non raro in fistulam abeunte adeo ut subiectum os corrumpatur. MUNNICKS.*

*Per pusillum utriusque palpebræ foramen lachrymæ naturaliter effluunt. FAB. AB AQUAPENDENTE.*

*Lachrymæ veniunt per lachrymalia a foramine quodam parvo, et quasi insensibili in fine pilorum. GUIDO.*

posed abscess, and to endeavour the digestion of it; on the other hand, they who supposed it to be an encysted tumor attempted the eradication of it either by knife, caustic, or cautery; and all of them taking it for granted when the discharge was apparently purulent, or much discoloured, that the bone was rotten, advise the use of escharotic applications, or the hot iron to destroy the callosity, and to dry and exfoliate the caries; and these methods failing, as in the nature of things they very frequently must, they pronounced the disease to be incurable.

A more minute and careful examination into the anatomy of the parts has given us a more true idea of the disorder, and furnished us with a more rational, as well as a more successful method of treating it. We now know that the caruncle is not the organ which secretes the tears, but that this office is performed by a gland, situated near the outer corner of the eye; that the lachrymal fluid is in its nature perfectly innoxious; that an obstruction in the nasal duct is most frequently the primary and original cause of the complaint; and that its seat is in the sacculus lachrymalis.

Upon



Upon these principles the modern practitioners have, with great industry and ingenuity, endeavoured to find out some means, whereby this obstruction may be removed, and the parts restored to their natural and healthy state, without such pain, destruction, and deformity, as the antient methods occasioned; or, these failing, to establish a new artificial passage, which may in some measure supply the place of the natural one.

All these means have the merit of being founded on the natural structure of the parts concerned: when the more easy, and mild ones succeed, the patient gains a considerable advantage; and when they do not, little time is lost, nor is any more efficacious method rendered thereby less practicable: in this, as in every other part of surgery, the more simple means ought to be first tried; pain should be avoided as much as possible, except when absolutely necessary, and then it must be submitted to.

## S E C T. II.

**T**HAT the motions of the eye-lids may be performed with the utmost ease, that the tunica cornea may be kept constantly clean, bright, and fit for the transmission of the rays of light, and that dust, and other hurtful particles, may be immediately washed away, the surface of the eye is continually moistened by a fine limpid fluid.

This fluid is derived principally from a large gland, situated under the upper edge of the orbit, near the outward corner of the eye, which gland is of the conglomerate kind, and lies in a small depression of the os frontis; its excretory ducts, or those by which it discharges the secreted fluid, piercing the tunica conjunctiva, just above the cartilaginous borders of the upper eye-lids.

While the caruncle was thought to be the secretory organ of the tears, this gland bore the title of *glandula innominata*; but now that its use and office are known, it is called *glandula lachrymalis*.

By



By irritation from any sharp or poignant particles, a large quantity of this fluid is immediately secreted, and by the motion of the eye-lids is as immediately derived over the surface of the eye, by which means such particles are washed and wiped off. Sometimes also the passions of the mind produce an immediate increase of this lymph, which is then strictly and properly called tears; a constant secretion of too large a quantity causes a disease, called epiphora; and a deficiency of it makes the motions of the lid difficult and painful.

Altho' the fluid secreted by the lachrymal gland is considerable in quantity, yet, when it is not suddenly produced by irritation from without, or passion within, it is so constantly and gradually carried off, as to create neither trouble, uneasiness, nor blemish.

The edge, or border of each eye-lid, is formed by a thin cartilage, the figure and consistence of which keep the lids properly expanded; these cartilages are covered by a fine membrane, and are called cilia; their internal edges do, upon every motion, sweep over every point of the surface of the cornea; this motion, tho' almost imperceptible,

ble, unless attended to, is very frequently performed, and as the secretion of the fluid is also constant, the eye is by this means kept always moist, clean, and bright.

At the extremity of each of these cartilaginous borders of the eye-lids, on the side next the nose, is a small papilla, or eminence; and in the middle of each of these is a small hole, or perforation, which being made in the cartilage is not liable to collapse while the parts are in a sound state, but remains always open; they are called the puncta lachrymalia, and their office is to receive the lachrymal fluid, as it runs off the cornea along the edges of the eye-lids, thereby preventing it from trickling down the cheek; and that there may be no impediment to the constant execution of this office, during the time of sleep, as well as that of being awake, the internal edges of the cilia do not come into immediate contact with each other in that point where these orifices are.

From each of these puncta lachrymalia proceeds a small membranous tube, which tubes soon enter into, or form a pouch or bag, situated near the inner angle of the eye, just below the union of the two lids,  
under



under the *musculus orbicularis palpebrarum*; the bag is called the *facculus lachrymalis*, and its office is to receive all the lymph brought by the puncta and ducts: the upper part of this *facculus* lies in an excavation, formed partly by the nasal process of the *os maxillare superius*, and partly by the *os unguis*; the lower part of it is confined in a long channel, and forms a tube, or duct, which descending obliquely backward, communicates with the cavity of the nose, behind the *os spongiosum superius*, by an opening whose size is somewhat different in different subjects.

This passage is called the *ductus ad nares*, or the *ductus nasalis*, and thro' it whatever is received by the *facculus* from the puncta does, in a healthy and sound state of these parts, pass into the nose.

The membrane which lines this *facculus* and duct, is in its structure much like to the *membrana pituitaria narium*, from the surface of which a clear viscid mucus is secreted, and by which the *facculus* and passages are constantly moistened and kept pervious.

While the parts are in a healthy, sound state, the fluid secreted by the lachrymal gland passes off thro' the puncta, *facculus*,

C

and

and duct into the nose, without any trouble, but when they are in a diseased state the case is otherwise; this membrane, like all other vascular parts, is liable to inflammation, by which means it often happens, that it is so thickened as to obstruct the nasal duct, and thereby much impede, or totally hinder the passage of any thing thro' it; in consequence of which obstruction the sacculus is filled by its natural mucus, and the derivation of the serum from the lachrymal gland thro' it being thus prevented, it runs off from the eye-lid down the cheek: this obstruction continuing, and the mucus still lodging, the sacculus is dilated, and produces that tumor in the inner corner of the eye, and that discharge, upon pressure, which characterize the first state of the disease in question, and in conjunction with several other attending symptoms, prove its seat to be in the lachrymal sac, and nasal duct.

S E C T.



## S E C T. III.

**A**LTHO' the seat of this disease is the same in almost every subject, yet its appearance is very different in different persons, and under different circumstances: these variations depend principally on---

1. The degree of obstruction in the nasal duct.

2. The state of the cellular membrane covering the sac.

3. The state of the sacculus itself.

4. That of the bone underneath.

5. The general state and habit of the patient\*.

Sometimes a serous kind of defluxion, by which the lining of the sac and duct are so thickened as to obstruct, or prevent the passage of the fluid thro' them into the nose, makes the whole complaint, and the cellular membrane on the outside not being diseased, there is no appearance of inflammation; in this case the duct is stopped, and the sacculus dilated, but without any alteration in the colour of the skin, a fulness

C 2

appears

\* As the state and circumstances of this disease are really various, and differ very essentially from each other, the general custom of calling them all by the one name of fistula lachrymalis is absurd.

appears in the corner of the eye next to the nose, and upon the application of a finger to this tumor, a clear viscid mucus is discharged thro' the puncta lachrymalia, the patient feels no pain, nor finds any inconvenience, except what is produced by the discharge of this mucus, and by the trickling of the lymph down the cheek.

In some cases the mucus is not perfectly and always clear, but is sometimes cloudy, and looks as if it had a mixture of milk or cream in it, at first waking some of it is generally found in the corner of the eye, and the eye-lashes being smeared over with it during sleep, most commonly adhere together in the morning.

This is the most simple state of the disease, what the French have called the hernia, or hydrophs facculi lachrymalis; it is frequently met with in children who have been ricketty, or are subject to glandular obstructions, and in this state it sometimes remains for some years, subject to little alterations, as the health or habit shall happen to vary, the facculus being sometimes more, sometimes less full, and troublesome, the mucus which is pressed out sometimes more, sometimes less cloudy, and now and then attended



ded with a slight ophthalmy, or an inflammation of the eye-lids, but which, by common care, is easily removed.

If the facculus is not much dilated, the discharge small, and produced only by pressure, the chief inconveniences are the weeping eye, and the gumming together of the lids, after sleeping; but these, by being attended to, may be kept from being very troublesome, and if the disease makes no farther progress, may be so regulated as to render any more painful process totally unnecessary.

If the dilatation is considerable, the swelling is more visible, and the quantity of mucus is larger; it is also in this state more frequently mixt and cloudy, and more troublesome, from the more frequent necessity of emptying the bag; but if the patient be adult, it may, even in this more dilated state of it, be kept from being very inconvenient.

If an inflammation comes on, the tumor is thereby considerably increased, the discharge is larger, as well during sleep, as upon pressure, the skin covering it loses its natural whiteness and softness, becomes hard, and acquires an inflamed redness, and with  
the

the mucus a mixture of something, which in colour resembles matter, is discharged, especially if the pressure be made with any force, or continued for any time: this circumstance, added to the painful sensation, and inflamed appearance of the parts, has been productive of a supposition, that in this state there is either an ulcer, or an abscess within the sacculus or duct.

As this is an opinion, which tho' it may possibly sometimes have some foundation in truth, yet is in general entertained much too hastily, and is also the principal source whence most of the mistakes concerning this disease have sprung, I would beg leave to be indulged in a few words on this subject.

It has already been observed, that from the surface of the membrane which lines these parts, a thin mucus is secreted, by which its surface is smeared over, in the same manner as is that of all the membrane which covers or lines the fauces, larynx, and internal parts of the nose, the antra of the jaws, and the sinus's of the sphenoid and ethmoid bones, &c. While the lachrymal sac is free from disease, and the ductus ad nares open, this mucus is nearly limpid in colour, small in quantity, and



and passes insensibly into the nose with the fluid from the lachrymal gland; but when, by the obstruction of the nasal duct, that passage is denied, it necessarily lodges in the sacculus, by distending and irritating its containing bag, it is increased in quantity, altered in colour, and discharged at the puncta lachrymalia, as it either becomes too much for the sac to contain, or as it is forced out by pressure. This is a short and succinct account of the true nature of the disease, and such as will fairly and truly account for all its symptoms and appearances, without any recourse to either abscess or ulcer, circumstances which very seldom, if ever, attend it.

That which is mixed with the clearer part of the mucus, and which from its pale yellow hue is taken for matter, is not matter, but mucus, which in this part, as well as several others in the body, does, either by being confined beyond the necessary time, or by inflammation, or irritation of the gland or membrane which secretes, or contains it, or even from general affection of the habit, put on a yellow, purulent colour, where there is neither abscess, nor ulcer in the part whence it comes.

So

So many instances of this are producible as to put the matter beyond all doubt, the urethra, vagina, and all the sinus's of the head which communicate with the nose, furnish us with them daily ; the linings of all these are constantly imbued with a mucus naturally clear, and no more in quantity, than is necessary to keep the membranes moist, but either inflammation or irritation does immediately so add to its quantity, and so alter its colour, that in the two former, the same mistake has often been made as in the subject in question, that is, the discharge has been thought to be purulent, and produced by ulceration of the parts.

These two fluids pus and mucus, which have been so frequently confounded together, do really differ so widely from each other in their nature, constitution, sources, purposes, and effects, that to distinguish them properly, and to point out the true character of each, seems to be a matter of much importance ; it would carry me too wide from my present purpose to attempt it in this place, and therefore I shall only just mention what may serve merely to illustrate that.

If



If I conceive rightly of this affair, mucus, considered in a general sense, is the effect of a natural secretion made by glands, membranes, or other bodies appointed for that purpose, and is so far from being originally the consequence of disease, that, in a due quantity, it is absolutely necessary for several very important purposes in the animal œconomy, which purposes, when this fluid is deficient, must be ill-executed, and some kind of disease, or defect follow: whoever will reflect on the uses of it in the intestines, joints, sheaths, or capsulæ, of the tendons, in the sinus's of the skull serving the purposes of speech, in the cavity of the nose, where the olfactory nerves do their duty, in the prostate gland, larynx, trachea, urethra, and vagina, will be easily convinced of the truth of this assertion, both with regard to its natural uses in a healthy state and proper quantity, and the share it frequently has in the production of diseases, when it is either vitiated or redundant.

Pus, or matter, is certainly no natural secretion; suppuration, tho' it is an act of nature when some parts of the body have been forcibly divided from each other, is never-

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theless

theless to be regarded as the effect of violence and destruction, at least of division; for, without entering minutely into the origin or nature of it, I believe, I may venture to affirm, that the dissolution of some of the solid particles of broken capillary vessels, and a mixture of some part of the juices which should circulate thro' them, make a necessary part of its production; however constant its appearance may be in the progress toward healing a wound, or sore, yet it never is produced, even in the smallest quantity, without some degree of erosion, some breach in the natural structure of the parts, and when such breach is healed the discharge necessarily ceases.

On the contrary, mucus may by irritation, relaxation, or defluxion, on its secreting or containing parts or organs, be increased to a quantity far beyond what is necessary or useful, and produce thereby a disease in parts where there is not the least degree of solution of continuity, as in the cases of tenesmus, stone in the bladder, fluor albus, and simple gleet from the urethra; as also in that kind of defluxion on the nose and fauces, producing a catarrh, and in the immediate effect of all sternutatories.

Other



Other differences between the nature and properties of the two fluids might be mentioned, but if these already cited are just, they will be sufficient to evince the impropriety of confounding them together, either with regard to theory or practice.

Nor is this mistake of discoloured mucus for matter confined to the lachrymal sac only; the two circumstances of pain, and yellow colour, having, in almost all times produced the same misconception in the virulent gonorrhea of both sexes; this has been called pus, and being said to proceed from ulcerations in the urethra and vagina, though the repeated testimony of those who have, immediately after death, examined the parts of persons so diseased, has often been produced to the contrary, and tho' the discharge itself, when properly examined, will always prove the contrary: inflammation and irritation of the membranous linings of the urethra, and vagina, will fully account for all the appearances in this disease, in which there is neither matter nor ulcer, nor abscess: whoever will attend to the discharge made from a purulent ulcer, will find it widely different from that which issues from either of the above parts in the gonorrhea.

Again, in case of strictures in the male urethra, the discharge occasioned by a bougie, properly and judiciously used, is a discoloured mucus, and not matter, tho' it is generally so called; it is from the discharge of this mucus, and the dilatation of the passage, that the relief is obtained, not from any destruction or division of parts; the bougie, which produces true matter, does much more harm than good, makes a sore where there was none, and where there ought to be none; how often do catarrhus defluxions on the trachea, and larynx, wear toward the close a deep purulent colour, so as to deceive the unknowing into an opinion, that it is matter from the lungs? But no judge of these things ever had recourse to abscesses or ulcers for a solution of such appearance. The argument drawn from the quantity of these discharges is as erroneous as those taken from its colour; as an inflammatory defluxion on the part does generally occasion the latter, so meer irritation will produce the former, which does also generally cease when the irritating cause is removed or appeased: how immediately is a most troublesome tenesmus cured by a glyster of starch and opium? What large fœtid discharges



charges are made from behind the prepuce of many persons, not only free from all venereal taint, but without any ulceration of the parts, by a kind of exudation? To what length of time will they not continue, if neglected, and how immediately do they cease by the use of a spirituous or vitriolic wash? How often is the fluor albus, even in some of its worst circumstances, moderated, not to say cured, merely by washing away the acrid mucus, which lodging in the rugæ of the vagina, continually irritated the parts to a fresh discharge, and perpetuated the disease? What quantity of slime is there in the urine of those who have a stone in the bladder? And how totally does it cease, upon that stone being discharged, or taken away? Whereas neither cleansing of parts, nor removal of irritating bodies, does, or ever can procure an immediate cessation of a discharge of true matter, which being occasioned by a solution of continuity, an erosion or division of the parts whence it proceeds must decrease gradually, and at last can only cease by such part becoming whole again.

In short, the two fluids are so absolutely different and distinct, that the blending them  
toge-

together in our ideas of disease, proceeding from, or producing either of them, cannot be too industriously avoided ; it is a subject on which a great deal more might be said, as it would comprehend, or have relation to many disorders, which perhaps are not sufficiently understood, or attended to ; but being beside my present purpose, I shall say no more about it, only desire, that I may not be misunderstood, as if I meant to assert, that there never is abscess or ulcer in the lachrymal sac, and duct : No, I only mean to signify, that it is my opinion, that the yellow or purulent colour of the discharge, which is generally received as a proof of such, is no proof at all ; that this colour may be, and most frequently is, dependent on other causes ; that tho' by the suppuration of the cellular membrane covering the sac, the upper part of it sometimes becomes sloughy, and bursts, yet the lower part of it, and the nasal duct, are often at the same time perfectly sound ; and that there never is abscess or ulcer within, while the skin is entire and preserves its natural hue, and softness, let the colour of the discharge be ever so yellow ; circumstances of no small consequence in the treatment of this disease.

The



The inflammation of the cellular membrane covering the sac, is a circumstance which makes a considerable difference, both in the appearance of the disease, and in its requisite treatment; in some cases it is confined merely to the surface of the tumor in the corner of the eye; in others it spreads still farther, affecting the eye-lids, cheek, and side of the nose.

When the parts are in this state, the mucus within the bag has generally the appearance of being matter, that is, it wears a deep yellow colour, and is of a more thin consistence; if the puncta lachrymalia are naturally large and open, and the inflammation confined to the surface of the sac, its contents will pass off pretty freely, and the skin will remain intire; this is what the ancients called the simple, or imperfect, or anchylops.

But when the skin covering the lachrymal bag has been for some time inflamed, or subject to frequently returning inflammations, it most commonly happens, that the puncta lachrymalia are affected by it, and the fluid not having an opportunity of passing off thro' them, distends the inflamed skin, so that at last it becomes sloughy, and bursts  
exter-

externally. This is that state of the disease which is called perfect, Aigylops, or Ægylops; the discharge which used to be made thro' the puncta lachrymalia, while the skin was intire, is now made thro' the new opening, and by excoriating the eye-lids and cheek increases the inflammation, and gives the disease a much more disagreeable appearance. In some the matter bursts thro' a small hole, and after it has discharged itself, the tumor subsides, the neighbouring parts become cool, and tho' the skin covering the surface of the sacculus is sloughy and foul, yet there is no reason to believe that the sac itself is much diseased below; in others the breach is large, the skin remains hard and inflamed, and from the appearance of the fore, there is reason to suppose the whole inside of the bag to be in a diseased state; and in some cases, which have been much neglected or irritated by ill-treatment, the cavity of the sacculus seems to be filled with a loose ill-natured fungus, which gleans largely, and produces inflammation and excoriation of all the parts about.

There is also another circumstance which sometimes is found to attend this disorder, viz. a carious state of the bones; this was  
by



by our forefathers supposed to be a frequent one, and was the principal reason for their so free use of caustic, cautery, and scalpra, in the treatment of it; but since the disease has been more minutely examined into, this circumstance has been found to be a very rare one. When the fistula lachrymalis is a symptom of the lues venerea, as it sometimes is, the bones are indeed often carious, but then, the fistula is not the original complaint, but produced secondarily, and is a consequence of the diseased state of the os ethmoides, and ossa spongiosa of the nose, and is not curable by any local means or applications, but depends intirely on the cure of the disease, of which it is a symptom.

I have also seen an abscess after the small-pox, which by falling on the lachrymal bag, has made it all slough away, and leave the bones bare, which circumstance I have also seen attend the free use of strong escharotics applied to destroy what is called the cyst; but without the accession of some other disorder producing it, or the most absurd method of treating the complaint, I believe that a caries of the bones will very seldom be met with. Indeed the combination of other diseases, either of the general habit,

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or affecting the same, or the neighbouring parts, does often make a very material difference, both in the appearance of the disorder, in the prognostic, and in the proper method of treating it, which therefore should always be enquired into ; for instance, the patient is sometimes subject to an habitual ophthalmy, or lippitudo, which will add to the deformity, and give a good deal of additional trouble during the cure ; an ozæna, or some other disease of the membrane, and cells of the ethmoid bone, or a polypose excrescence within the nose, are now and then combined with it ; the habit is sometimes, as I have before observed, infected with the lues venerea, of which this disease may be a symptom ; strumous glandular obstructions are its too frequent companions, and what is worst of all, it is sometimes cancerous.

#### S E C T. IV.

**F**ROM what has been said, I think it will appear that this disease, in its primary and most simple state, consists in a detention or lodgment of mucus in the sacculus lachrymalis, in consequence of an obstruction of the natural passage from that  
bag



bag into the nose; that by means of this lodgment the sacculus is distended, irritated, and sometimes inflamed; that the fluid which passes from the lachrymal gland over the eye to the puncta lachrymalia, being prevented by the fulness of the sac from getting into it, runs down the cheek, and therefore that the characteristic marks of the disorder, when recent, are a small tumor in the inner corner of the eye, an involuntary flux of serum down that side of the face, and a discharge of mucus thro' the puncta lachrymalia upon pressure.

This lodgment, being originally produced by the stoppage of the natural duct, it follows, that the first curative intention is, the removal of that obstruction; which is sometimes practicable, but more often not; the degree of obstruction, its date, the state of the adjacent parts, and some other circumstances rendering it more or less so in different subjects.

That the inexperienced practitioner may be guarded against giving a hasty prognostic, or making attempts, which however fatiguing to the patient, must in the end prove fruitless; and that he may be enabled to understand the disease more perfectly, I shall

take the liberty to divide it into four general heads, or states, under which all its lesser distinctions may be comprehended.

The first consists in a simple dilatation of the sacculus, and obstruction of the nasal duct, discharging upon pressure, a mucus either quite clear, or a little cloudy, the skin covering the bag being intire and perfectly free from inflammation.

In the second, the tumor is somewhat larger, the skin which covers it is in an inflamed state, but intire, and the discharge made thro' the puncta lachrymalia, is of a pale, yellow, or purulent colour.

In the third, the skin covering the sacculus is become sloughy and burst, by which means the swelling is in some measure lessened; but the mucus, which while the skin was entire, used to be pressed out thro' the puncta lachrymalia, now discharges itself thro' the new aperture; the ductus ad nares, both in this and the preceding state, are not otherwise diseased, than by the thickening of its lining.

In the fourth, the passage from the sacculus lachrymalis into the nose is totally obliterated, the inside of the former being either ulcerated or filled up with a fungus, and attended



tended sometimes with a caries of the bone underneath.

These will, I think, comprehend every state and circumstance of the disease, and if attended to, will in general point out the proper method of treating it.

The ancients, who supposed this disorder in its first state to be an inflammatory defluxion from the brain on the caruncle tending to suppurate, directed their first attention to prevent such consequence, for which purpose they employed phlebotomy, cathartics, issues, setons, collyria, and refrigerant applications of all sorts \*; and these not succeeding, they had recourse to such as they thought would hasten the suppuration of the supposed abscess †.

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\* The old writers have many forms of collyria, epithems, &c. which they used upon this occasion, but issues and setons they lay great stress on, which practice may immediately satisfy us what was their opinion of the nature of the disease.

“ *Omnium vero præstantissimum est setaceum, materiam enim ad oculos fluentem potenter ad se trahit et evacuat, caput ab omnibus excrementitiis humoribus expurgat, et egregie corroborat, quid plura, tanti est momenti ut inveteratam fistulam lachrymalem sine hoc præsidio vix curari posse.*”

† Mr. Serjeant Wiseman most certainly did not understand this disease, and mistook it either for a tumor of the encysted kind, or for an inflammatory defluxion, and treated it as such, his words are,

“ *Ægylops*

By the improper use of medicines of the latter kind, it frequently happened that the skin became inflamed and burst, the discharge which necessarily followed this accident, together with the heated appearance of the parts about, confirmed their opinion of a collection of matter within, and according to such supposition, they attempted to obtain a cure by dilating the orifice, and endeavouring to make an incarnation from the

“Ægylops is a tumor of the inner canthus of the  
“eye, either scrophulous, ætheromatous, or of the  
“nature of a meliceris, or sometimes with inflamma-  
“tion; the causes of Ægylops are the same that pro-  
“duce the like tumor in other places, but sometimes  
“it is made by fluxion, and appeareth first as a phleg-  
“mon: if it be struma or atheroma it is made by con-  
“gestion.”

“The indications of cure are taken from the Ægy-  
“lops, whether it be in its beginning with inflam-  
“mation, or by congestion, passing its matter forth  
“under the cilium into the eye, in which case it is fi-  
“stulated. Anchylops has also its peculiar way of  
“treating as other tumors of the glands.”

Without any design to criticise on the strange unintelligibility of the Serjeant's language, I believe, I may venture to say, that no man who is not previously acquainted with the nature of the disease, will learn from hence that its seat is in the lachrymal sac, and that an obstruction in the nasal duct is the first cause of it.

To come still nearer, or even into, our own time, Dr. Daniel Turner compiled a treatise of surgery, which was universally dispersed, and read all over the kingdom, and was at that time generally looked upon as a true representation of the London practice: the  
Doctor



the bottom of the hollow ; not being acquainted with the situation, or use of the nasal duct, they took no care to free it from the obstruction under which it laboured, but dressing the fore like a common impostumation, permitted it either to be filled up with a loose fungus, or to contract itself to a narrow fistulous orifice, which daily discharging a discoloured kind of fluid, and not healing by such means as they made use of, they concluded the bone underneath was carious, and

Doctor says, “ Anchylops or Ægylops, are diseases of  
 “ the internal canthus of the eye, in which the lachry-  
 “ mal gland is concerned, and from whence the fistula  
 “ of the same part is denominated ; the prognostic may  
 “ be gathered from the method of cure, in which, univer-  
 “ sals premised, such as bleeding, purging, &c. you may  
 “ attempt to dissolve the humour by some gentle ano-  
 “ dyne, or discutient cataplasm, but if it inflame and  
 “ suppurate, you must hasten maturation, as well as  
 “ the discharge, by reason of the part it lies upon ; but  
 “ when notwithstanding all your endeavours to incarn  
 “ and agglutinate, the matter continues to discharge  
 “ itself, not only by the outward orifice, but also un-  
 “ der the cilium into the eye, you must try some more  
 “ powerful desiccative.”

I believe no one will venture to say, that the nature and seat of the disease is more or better explained by what the Doctor has said, than by the Serjeant ; and I think it is perfectly clear, that neither of them had any true idea of it at all, they both mistook the caruncle for the lachrymal gland, and the disease for an encysted, or a scrophulous tumor, which ought to be brought to suppuration ; the lachrymal sac, the ductus ad nares, their use, and the disorder of them creating the complaint in question, they were totally unacquainted with.

and made way down to it, either by removing the parts with a cutting instrument, or by destroying them with caustic, and cautery, intending to procure an exfoliation, and thereby a firmer basis to heal on \*.

But since the use of the ductus nasalis has been known, since it has been discovered that an obstruction in this is the primary and principal cause of the disorder, and that what passed for the cavity of an abscess is really the sacculus lachrymalis, both the intention of cure, and the means, have been considerably altered.

In the first and most simple state of the disease, viz. that of mere obstruction, without inflammation, much pains have been taken to restore the parts to their natural state, and use, without making any wound or division at all; the introduction of a probe, the injection of a fluid, and a constant

\* Humulo summum ejus foraminis excipiendum, et totum id cavum sicut in fistulis dixi, usque ad os excidendum.

CELSUS.

Corpus id quod inter angulum usque ad abcessum est excolumus et carnes e profundo educimus; quod si igitur per summa ruptus fuerit abscessus, totum id quod eminet usque ad os excidendum.

PAULUS.

Si vero per hæc medicamenta non curetur, aut recedivaret postea, signum est quod os est corruptum de subtus quare, tunc oportet locum detegi et os corruptum removeri.

LANFRANC.



stant compression made on the outside of the sacculus in the corner of the eye, are the principal means by which this has been attempted.

Some few years ago M. Anel made a probe of so small a size as to be capable of passing from the eye-lid into the nose, being introduced at one of the puncta lachrymalia, and passing thro' the sacculus and duct; with which probe he proposed to break thro' any small obstruction, which might be found in its passage.

He also invented a syringe whose pipe is small enough to enter one of the puncta, and by that means to furnish an opportunity of injecting a liquor into the sacculus, and duct; and with these two instruments he pretended to be able to cure the disease whenever it consisted in obstruction merely, and the discharge was not much discoloured. The first of these, viz. the passage of a small probe thro' the puncta, has a plausible appearance, but will, upon trial, be found very unequal to the task assigned; the very small size of it, its necessary flexibility, and the very little resistance it is capable of making, are manifest deficiencies in the instrument; the quick sensation in the lining of

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the sac, and duct, and its diseased state, are great objections on the side of the parts, supposing that it was capable of answering any valuable end, which it most certainly is not.

That the passing a fine probe from one of the puncta lachrymalia into the nose is very practicable, I know from experience, but I also know from the same experience, that the pain it gives, and the inflammation it often excites, are much greater than any benefit which does or can arise from it.

It is said that the principal use of this probe is to clear the little ducts leading from the puncta into the sacculus, and the obstruction of those ducts is often mentioned as a part of this disease; by which one would be led to suppose that it was a circumstance which frequently occurred, whereas it is seldom if ever met with, and when it does happen, can never produce the disease in question, the principal characteristic of which, is a discharge into the inner corner of the eye upon pressure made in the angle; this discharge is made from the sacculus, thro' the puncta, and proves that the latter are open; the passing a probe therefore thro' these seems to be perfectly unnecessary, since a stoppage of them would  
never



never give rise to that disease, which consists in an obstruction to the passage of any thing from the sac into the nose, and not from the eye into the sac.

The syringe, if used judiciously while the disease is recent, the sac very little dilated, and the mucus perfectly clear, will sometimes be found serviceable ; I have used it where, I think, it has been much so ; I have by means of it injected a fluid thro' the facculus into the nose, and in two or three instances have effected cures by it, but I have also often used it ineffectually ; it gives no pain, and a few trials render the use of it very little troublesome.

Fabricius ab Aquapendente invented an instrument, which was so contrived, as by means of a screw to make a pressure externally on the lachrymal bag, from the use of which, he says his patients received much benefit ; this instrument has been considerably improved by late practitioners, and is still recommended as very useful.

All the good that can be obtained by compress, and bandage, this screw is capable of procuring ; but it is also subject to all the same inconveniences, arising from the impossibility of determining exactly the due

degree of pressure, for if it be so great as to bring the sides of the upper part of the sac into contact, all communication between it and the puncta will be thereby stopt; if it be but slight, the accumulation will not be prevented, nor does it in either case contribute to the removal of the obstruction in the nasal duct, the primary and original cause of the disease.

If the curative intention was to procure an union of the sides of the sacculus, as in the case of parts separated from each other by the formation of matter or floughs, and the pressure could be made uniformly and constantly, possibly it might be so managed as to answer a valuable purpose; but as that is not the intention, the pressure, whether made by an instrument, or by a common roller, and compress, contributes little or nothing toward a cure, nor did I ever see one effected by it, altho' I have several times tried both.

That some slight obstructions of the nasal duct have gone off while the compression has been used, I do not deny, but am in great doubt concerning the share which it had in removing them, having seen more than one instance of a cure being obtained  
by



by the use of a proper regimen and medicines, in slight and recent cases, where nothing was used externally but a vitriolic collyrium; and having been always disappointed in my attempts by mere bandage of any kind.

Besides these means of attempting a cure without incision, the gentlemen of the French Academy have favoured us with some others, such as, the introduction of a probe into the lower part of the nasal duct within the nose, the injection of a fluid by the same orifice, the passing a seton from the punctum lachrymale superius thro' the sacculus and duct and out at the nostril, there to remain 'till the cure is compleated; and for those purposes they have invented and given figures of a number of probes, syringes, and many other instruments which, they say, have been very successfully used; far be it from me to say that they have not, or to prevent any body from trying those, or any other means by which mankind may be cured of diseases with the least possible fatigue and pain; but from the experiments which I have made of most of these processes, I must beg leave to suspend my assent to their general utility, or even to their frequent practicability.

Repeated

Repeated trials upon dead subjects will undoubtedly enable a man to pass the probe, or perhaps now and then the seton, but he will also find it often absolutely impracticable, and in the few instances in which he may chance to succeed as to this attempt, what will in general be the consequence? not what the writers on these subjects have taught him to believe, a cure, but a sense of pain, and degree of inflammation, which the patient, before such attempts were made, was free from, an exasperation of the disease, and a loss of much time, as I have more than once experienced. To which consideration may be added, that infants and young children are very often afflicted with this disorder, and that such processes as these, are absolutely impracticable upon them.

I should be very sorry to be misunderstood in what I now say, to have it suspected, that I mean to derogate from the character of those gentlemen who have been the inventors of these operations, or that I speak slightly of them, either because they are not my own, or because I have not been able to succeed in the use of them: it would give me great concern if I thought it would be believed that I acted upon so mean, so  
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narrow a principle; no man is or would be more pleased with any real improvement in our art than myself, but having taken all the pains in my power to apply the discoveries of which I am now speaking to practice (the only test of good surgery) and having found them most frequently impracticable, always ineffectual, I think myself obliged to say so.

Anel's syringe I have used successfully, and think it may now and then be very well worth trying, in recent cases more especially, as it may always be used without giving any pain, or running the risque of raising an inflammation; but I must also beg leave to observe, that if the bag is not much dilated, the mucus clear, the skin and cellular membrane uninflamed, and the parts about soft and easy, if the patient will take care not to suffer too great an accumulation, will, by the frequent use of a vitriolic collyrium, keep the eye-lids clean and cool, and carefully avoid such things as irritate the membrana narium, or occasion a sudden flux of lymph from the lachrymal gland, the disease may for many years, nay often for life, be kept from being very troublesome, or inconvenient, without any surgery at all.---

S E C T.

## S E C T. V.

**W**HEN the disease is got beyond the simple state just described, that is, when the parts round about are much, or constantly inflamed, or the skin covering the tumor is burst, there is something more to be done, if a cure is intended.

In this state an opening in the upper part of the sacculus lachrymalis becomes in general absolutely necessary; and as a wound made by a knife leaves a much less disagreeable scar than that which necessarily follows the bursting of the skin, one being a mere simple division, the other a loss of substance; it will always be found best to anticipate the accident of bursting, by making the opening, as soon as the integuments are in such a state as to threaten it.

For the making this incision authors have been very particular in their direction with regard to its place, manner, and form; they have ordered it to be semilunar, having its concave part toward the eye, and that the point of union of the lids should be exactly opposite to the center of the incision; this lunated figure was calculated to correspond with the course of the fibres of the orbicular

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lar muscle, upon a supposition that a transverse section of them, would produce an inversion of the lower lid, an effect which never follows; all that the surgeon need observe, is to take care to keep the knife at a proper distance from the juncture of the palpebræ, to begin the incision a very little above a line drawn from that juncture toward the nose, and to continue it downward; its form may full as well be straight as any other, and the best instrument to make it with is a small crooked bistory.

If the sacculus is already burst, the place of opening is determined, and the orifice may be enlarged with a knife, or dilated.

The incision made, the sacculus should be moderately distended, either with dry lint, or a bit of prepared sponge; by which means, an opportunity will be gained in two or three days of knowing the state of the inside of the sac, and of the ductus nasalis; if the former is neither sloughy nor otherwise diseased, and the obstruction in the latter but slight, it sometimes happens that after a free discharge has been made for some days, and the inflammation occasioned by the first operation is gone off, the sac contracts itself, a superficial dressing, with moderate

pressure, heals the sore, the lachrymal fluid resumes its wonted course, and the disease disappears.

Of this I have seen more than one instance, and perhaps it would happen oftener, if the very absurd manner in which this disorder is generally treated after opening the bag, did not prevent it; in this state success is to be expected from the most gentle treatment only; whatever irritates, inflames, or destroys, will infallibly prevent it.

If this simple method does not succeed, or from the state of the parts seems unlikely to do so, another must be tried, which the opening already made will enable us to put in practice: the point to be aimed at is, if possible, to render the nasal duct pervious to the lachrymal fluid; and we must endeavour to obtain this end by such means as give the least pain, excite the least inflammation, and leave the parts as near as possible in their natural state, that is, we are to endeavour to dilate the passage from the sac to the nose, by some means which will gradually distend it without destroying its texture, in the same manner as the dilatation of the urethra ought to be effected in the case of strictures, by passing  
either



either a probe, or a piece of cat-gut, or a bougie, gently into it, as far as it will easily go, and repeating it occasionally, until it is got quite through, and the passage is free \*.

Every man will determine for himself, by what means he will endeavour to accomplish this end, nor is it of very material consequence which he prefers, provided it be done gradually, and without giving pain; a proper dilatation of the upper part of the sacculus by dry lint, or a bit of prepared sponge, will be found useful previous to the attempt toward passing any thing into, or thro' the duct; and it will also be necessary that the surgeon be possessed of a just idea of the size and direction of it, both in a natural, and a diseased state; for whoever has formed one only from viewing its bony channel in a dry skull, will upon experiment find himself much deceived with regard to its diameter in a living subject; the

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\* This caution is very necessary to be observed in the cure of strictures of the urethra, in which case the proper intention is gradually to dilate the passage, and to procure an increased discharge of mucus from the lacunæ; this should always be done gently, and by means which give as little pain as possible; whatever irritates or gives pain will certainly do mischief, will add to the obstruction, and increase the dysfury.

membrane which lines it is not extremely thin, in a healthy state, and when it is inflamed or thickened by obstruction, the passage thro' the duct is thereby rendered very small, if it is not quite shut up.

They of our ancestors who mistook this disease for an abscess, and found (as indeed they always must) extreme difficulty in filling it up with sound flesh, generally had recourse to escharotic medicines for the destruction of that fungus which seemed to hinder them from accomplishing their end; by which conduct they irritated all the neighbouring parts, increased the inflammation, and were most frequently frustrated in their expectation of a cure at last. The same kind of medicines were also used by those who supposed the disorder to be an encysted tumor, with intention to eradicate the cyst, which, they thought, prevented a cure by remaining behind; and both these methods of practice were vindicable, supposing their idea of the disease had been a true one, which it most undoubtedly was not; their reasoning was right, but their principles were wrong; they were in general very little acquainted with the structure and use of the parts, and totally mistook the nature of the disease.

But



But now, that we are thoroughly acquainted with both, this kind of practice ought surely to cease, as the preservation of the sacculus and duct, and not their destruction, are, or ought to be, intended: all cathæretic medicines must be wrong and prejudicial, at least while the intention is such; an intention at all times rational, and sometimes capable of being fulfilled.

Notwithstanding the destruction of the bag is allowed to be wrong by most surgeons of the present time, yet there are many, who, by their manner of dressing it, after they have opened it, do really, tho' not intentionally, produce the same effect as our forefathers aimed at: it is still a custom with many, as soon as it is opened, to distend the cavity of it with a hard tent, or with dossils of lint charged with escharotic medicines, such as *mercurius precipitatus ruber*, &c. by which means the inflammation is increased, the skin and edges of the incision hardened, and the inside of the sacculus put under the necessity of casting off a slough. This is one of several instances still remaining of our adhering to old methods of practice, after the principles on which such methods were originally formed have been allowed even

even by ourselves to be erroneous ; for this manner of dressing the sore is effectively the same as the antients made use of, while they supposed the disease to be an abscess of the caruncle, and encysted tumor, or a callous ulcer with carious bone ; and was by them intended very properly for the destruction of such callosity, to assist the exfoliation of the supposed caries, and to procure a firm basis to incarn upon.

On the contrary, the point which ought first to be aimed at, immediately after having made an opening into the sac, is to endeavour to remove the obstruction of the natural passage from thence into the nose, by the means already mentioned, which design this method of cramming in escharotic dressings must necessarily frustrate, must frequently render a simple case complex, and at least retard that cure it is designed to expedite.

The only excuse that can be now made for such method of dressing, is that the surgeon is satisfied that the ductus ad nares cannot be restored to its use, and therefore by destroying part of the sacculus, intends to procure such a generation of new flesh, as  
may



may fill up its cavity, and hinder the accumulation, or lodgment there in future.

If this was feasible, perhaps it might be a vindication of such treatment, but unfortunately it neither is, nor can be so in general; and whoever will attentively examine the natural situation and structure of the parts concerned, will immediately see why it cannot. All, or the greatest part, of the diseased and obstructed duct, lying in its bony channel out of the reach of what is applied to the inside of the sacculus, must prevent the generation of a firm basis at its bottom, and produce a fresh collection of mucus, which in a short space of time lifts up the cicatrix, into a new tumor, and requires the same treatment as if nothing at all had been done.

On the other hand, it must not be denied, that now and then a cure has by this means been effected, but it has been so rarely, that it can hardly be admitted as an authority or vindication of so irrational an attempt.

The parts about the eye are most of them of very quick sensation, and easily irritated; all dressings are in fact extraneous bodies, and therefore when applied to such parts cannot be too soft and light: suppuration is  
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an act of nature, not of art ; and is always best executed, when she is least disturbed : this is a general truth, and will hold good in all parts of the body, even where suppuration may be most wanted ; but in the present case, in which the lower part of the sac, and all the duct, are often in such state as not to require any suppuration at all, escharotic dressings of any kind, by producing inflammation both of the eye and caruncle, by rendering the edges of the sore hard, or sloughy, and by destroying the communication between the puncta lachrymalia and sacculus, must necessarily counteract the only proper intention of cure.

I would not in this place be thought to mean that a mere superficial pledgit is all the dressing that is required ; no ; a moderate dilatation of the upper part of the sacculus is at first absolutely necessary, in order to get easily at the duct below ; but this should be effected without the use of corrosive applications of any kind, and is best accomplished by prepared sponge, which will distend to almost any degree, without destroying.

When a passage has been once obtained, it should be carefully kept open, either by  
a piece



a piece of cat-gut, a small bougie, a leaden probe, or something of that sort; and when it is thoroughly established, the fore may be permitted to contract, until it becomes no more than what serves for the introduction of the bougie into the duct; in this state I would advise, that it be kept open for some time, injecting now and then a little aqua calcis, softened with mell. rosar. thro' from above into the nose; and when it appears, that the passage is so free, and so well established, that there is good probability of its preserving itself, the orifice in the angle of the eye, by being covered only by a superficial bit of plaster, or pledgit, will contract and close; and if during its closing, moderate pressure be used on the sacculus, to prevent a fresh accumulation of mucus, it will assist the cure.

Whether the sacculus in a healthy and undilated state, is endued with any degree of contractile power, which it loses by being distended, or to what other cause it may be owing, I know not; but have more than once been foiled in my attempts toward this method of curing the disease, by a fresh collection of mucus, notwithstanding the nasal duct has remained open, as appeared by the

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discharge made into the nose, upon pressure on the tumor, the immediate subsistence of the said tumor, and the passage of an injection, or small probe, after having again opened the sac. Some of these have, upon being again healed, remained good cures, and others not; the uncertainty which attends these cases is great, and the event never to be known but by experiment. Whoever says, that none of them are to be cured by the fore-going method, errs as much as he would, who should expect it to succeed in all; where the disease is in such state, as to admit its being tried, it is very well worth while, as it is not painful, nor tedious; and where it does not answer our expectations, it is no hindrance to any other more efficacious one being made use of afterward; in all these cases, different circumstances in the patient, or in the state of the diseased parts, must produce a variation in the necessary treatment, both in general, and particular; a bad habit will require the use of internal remedies; the combination of other diseases of the neighbouring parts will add to the difficulty and trouble; and even the fairest, and such as seem most likely to succeed, do sometimes resist this, and indeed every other attempt. From



From the necessity of keeping the eye bound while dressings are applied for the dilatation of the sacculus, an inflammation is frequently raised; this added to the necessary discharge of serum, mucus, &c. is apt to heat and excoriate the parts about; therefore, warm fomentations, cooling collyria, epulotic cerates, and renewing the dressings as often as shall be necessary, with whatever else can contribute toward keeping the skin clean and cool, must be found serviceable, as well as pleasant, and should never be neglected.

## S E C T. VI.

**T**HE last state which I mentioned of this disorder, is that in which the natural passage from the sacculus to the nose is so diseased as to be quite obliterated, or in which the bones are sometimes found to be carious.

The methods hitherto described have all been calculated to preserve the natural passage, and to derive the lachrymal fluid again thro' it; in this attempt they are sometimes successful, but when they are not, there is no chirurgical means left, but to attempt the formation of an artificial one in its stead.

The upper and hinder part of the *facculus lachrymalis* is firmly attached to the *os unguis*, a small and very thin bone just within the orbit of the eye; which bone is so situated, that if it be by any means broke thro', or removed, the two cavities of the nose, and of the orbit, communicate with each other, consequently the *os unguis* forms the partition between the hinder part of the lachrymal bag, and the upper part of the cavity of the nose; and it is by making a breach in this partition that we attempt the formation of an artificial passage for the lachrymal fluid.

This operation, if considered merely as a perforation, is no invention of the moderns, the ancients undoubtedly performed it; but tho' it was executed much in the same manner as it is now, yet it was not done with the same intention.

From the accounts which our ancestors have left us of the disease in question, it is plain, that they supposed it to be always attended with a degree of callosity, and often with caries, and that the surest way to obtain a cure was to lay the bone bare; this they effected, either by caustic or cautery, according to the humour of the surgeon,



geon, or the fears of the patient; if caustic applications were used, they waited the separation of the eschar; and if they found, or believed the bone to be altered, they applied an actual cautery to it; if the bone to which the iron was applied was the os unguis, it was too thin to bear much heat, or much pressure, consequently was easily burnt, or broke thro', and by that means an opening was made into the nose; a terebra was also sometimes made use of instead of cautery, and the same effect produced thereby \*.

By

\* Oculo et cæteris junctis partibus bene obtectis os ferramento adurendum est vehementius, quod si jam carie vexatum est, quo crassior huic squama abscedat quidam adurentia imponunt.

CELSUS.

Cum isto pulvere in veritate fere mortificabam omnes fistulas curabiles, et cum cauterio ferreo, aut æneo—factâ mortificatione tali totius carnis usque ad os, cum pulvere aut unguento superdictis superpone mortificato butyrum et escharâ aspice, et si fuerit os corruptum cauteriza ipsum usque ad ejus profundum.

GUL. DE SALICETO.

Postea si homo fuerit delicatus, per istud foramen mittatur Canellus ferreus vel æneus subtilis usque ad profundum si poteris, et per ipsum canellum ferrum candens immitte et fistulæ radices decoque: at si timuerit ignem immittatur pillula de unguento ruptorio.

ROLANDUS.

Osse detecto ferrum imprime calidum supra ipsum et ipsum cauterium mediocriter comprimendo postea imple totum vulnus cum oleo rosarum misto cum vitello ovi.

LANFRANC.

By each of these methods, a passage being made from the *sacculus lachrymalis* into the nose, a cure was sometimes accidentally obtained ; but the cautery was applied, either to destroy the supposed callosity, or to desquamate a caries ; and the *terebra*, either for the same reason, or to make a passage for the discharge of matter, which lodged, and as they thought, hindered the healing of the sore ; for as they were not acquainted with the natural passage of the lachrymal fluid, it would be absurd to suppose, that by means of this perforation they intended the formation of an artificial one. Callosity and caries were their two characteristics of the disease ; the dissolution of one, and the exfoliation of the other, were all they had in view from the use of either caustic or cautery, and the perforation of the *os unguis* was either accidental, or made merely for the discharge of matter †.

Indeed,

† *Fabricius ab Aquapendente*, who in general copies *Paulus*, speaks of the perforation as meant only to make a depending orifice for matter, “ *post carunculæ et loci excisionem, terebra humorem aut pus in nares derivavit.*”

FAB. AB AQUAPENDENTE.

*Gul. de Saliceto*, and indeed many other of the ancient writers, speak of using both cautery and *terebra* to the purpose of deriving the matter and sanies which lodge in the sac, into the nose ; and, by making a depending



Indeed, if we attentively consider what the old writers have left us on this subject, it will appear, that tho' they knew that a passage into the nose was sometimes a consequence of their use of the terebra and cautery, yet the operators had no very accurate knowledge of the parts they made so free with ; no precise idea of the bone on which their instruments were applied, or thro' which they passed ; nor of the place most immediately proper for such application of them ; sometimes they perforated the

pending orifice, to procure a firm basis to heal on.

“Aspice os, et si fuerit corruptum cauteriza ipsum usque ad ejus profundum, et concavitatem cum cauterio punctuali, et perfora ipsum ad aliam partem, ejus ut sanies per nasum fluat, deinde incarnetur et consolidetur.”

GUL. DE SALICETO.

Indeed the formation of an artificial passage for the lachrymal fluid could make no part of the intention of those, who were not rightly acquainted with the natural one.

Paulus mentions perforation with the terebra as the practice of some in his time, but from what he says, it is plain he did not practice it himself, or think it necessary, and that he regarded it only as a method of making a depending orifice ; his words are, “Quod si jam carie vexatum est ferro candenti, acuto, ac in cuspidem abeunte adurimus spongiâ frigidâ madente oculo imposita.”

“Sunt qui post carunculæ excisionem terebra usi humorem aut pus in nares derivarint ; nos autem satis habuimus eousque solum ferramenti ad Ægyptopem accommodatis adurere ut squama abscederet.”

PAULUS AEGINETA.

See also FAB. AB AQUAPENDENTE.

the os unguis very properly, sometimes the cautery or terebra was thrust into the bony channel of the natural nasal duct, and sometimes they were applied to the nasal process of the maxilla superior : the direction given by most of them to rasp the bone (*scalpris abradere*) and to impress the cautery with some force, that the bone may be sooner exfoliated, (*ut citius squama abscedat*) plainly prove that either they were not aware of the tender structure of the os unguis, or that they did not intend to apply their instruments to it ; if the former was the case, the perforation was accidental ; if the latter, they must have often done much more harm than good ; that is, they must have burned and destroyed unnecessarily parts which have little or nothing to do with the disease ; and by such treatment of them must have much oftener prevented, than accomplished a cure ‡.

The

‡ Petrus de Marchetti, tho' perfectly sensible that the os unguis was often broke thro' by the cautery, yet insists upon it, that it served no other purpose than to hasten exfoliation, "*Præterquam quod hujus perforationis non alius sit usus quam ut os perforatum aut inustum citius abscedat. Observandum tamen non esse perforandum os nisi præsentē maxima ipsius corruptione, sola siquidem ejus superficie corrupta aut alterata sit fuerit partem læsam abradere.*"

PETR. DE MARCHETTI.

And



The intention of the present practitioners in making this perforation is different from that of our ancestors ; but it is more rational, and founded upon the nature and use of the parts concerned in the disease ; it is to form and maintain a new artificial passage from the lachrymal bag into the nose, when the natural one can no more be rendered useful, and without any view to any thing else ; this, I say, is the aim of them all ; but tho' they are perfectly agreed in their intention, yet they are not so with regard to the instrument which they use, some still continuing the actual cautery, others using other different instruments.

The ancients preferred the cautery, for reasons which have already been assigned; but since the symptoms of callosity and caries have been found to be very infrequent, and the os unguis has been perforated solely with a view to make an artificial passage into the nose, the cautery has with many lost much of its ancient credit, and other instruments have been substituted in its place,

I                      which

And Mr. Verdue, a very modern wiiter, is also of the same opinion, " Le meilleur remede pour amorter " l'acide qui cause la carie, c'est de passer legerement " un cauteré actuel sur l'os sans le percer."

which give less pain at the time of using, and leave less deformity afterward.

But tho' many have laid aside the hot iron, yet it still has its advocates, who prefer it to every other instrument, and who have therefore endeavoured to obviate its inconveniences; they have directed that the cannula thro' which it passes, be made of a conical form, and so large at its lower end, as that they shall not touch each other; they have ordered this cannula to be wrapped round with wet rag, at the time of using it; they have placed a check upon the top of the iron to prevent its point from going too far, and have been particular in directing us to withdraw it as soon as it is got thro'.

But notwithstanding these and every other caution, the cautery gives great pain at the time of using, lengthens the attendance, and most commonly produces unnecessary deformity, even in the hands of the most dextrous, not to mention the horror occasioned by thrusting a hot iron into the corner of the eye.

When the inconveniencies arising from the use of this instrument, even in the best hands, are important, it may be easily guessed



fed what they must be in those of the clumsy and ignorant ; and therefore, unless some real advantage attends it, it ought certainly to be so discouraged, that no one may attempt to revive it ; let us then see with what intent it has been used by those who have appeared most fond of it, and who may fairly be supposed to have best known how to manage it.

The defence made by the wet rag against the heat of the iron, the disproportioned size, and the figure of the cannula, very plainly shew, that its effect is designed to be executed by the point only ; and the check at the upper end as clearly shews, that that point is designed to pass no farther than just thro' the bone, while all the ill effects are occasioned by the upper part of the cautery on the eye-lids and angle of the eye ; now, if it is not designed to produce any effect on any of the parts thro' which it passes down to the bone, but merely to burn thro' that and the membrana narium, and thereby make an opening into the nose, I do not see how it differs from any other perforator of equal size, except in the mischief it does to the parts above, to which it should do nothing.

It does indeed burn the bone and membrane, thro' which it pierces, and thereby prevents the orifice from closing again immediately, and this is certainly the principal end of perforation, by whatever instrument it is performed; but it is also as certain, that the same end is obtainable by means less mischievous and less horrible.

Our ancestors had a very plausible reason for using it, their ideas of callosity and caries always accompanied this disease, and authorised them to make use of such applications as they thought most proper in such cases; but now, when we know that these are symptoms which very rarely occur, or even if they do, that they are removable in a much easier manner, we are no longer vindicated in continuing an alarming and a painful process, when we can obtain the same end by much gentler means; for whether the membrana narium be burnt thro', or divided in any other manner, it is the future method of dressing that opening that must maintain it, let it be made by whatever instrument, or in whatever manner it may.

The late Mr. Cheselden was a warm patron of the cautery, took a good deal of  
pains



pains to prevent it from doing mischief, and has said in its defence, that--“ other methods of curing this disease have been much recommended, though often unsuccessful, but this, well performed, is fallible.” After so positive an assertion, I am sorry to be obliged to say, that it is contradicted by manifold experience; that there have been many instances of perfect cures performed without the use of a cautery; and that some of those who have been cauterised by Mr. Cheselden himself have been disappointed in the expectation of one; nor could he, with all the pains he took, prevent the effect of the heat of the iron, or leave his patient without a weeping eye.

The intention is merely to make an opening thro’ the os unguis and membrana narium into the cavity of the nose, and to treat that perforation in such a manner as that it shall most probably remain open, and give passage to the lachrymal fluid from the puncta, after the external fore is healed.

The extreme thinness of the bone renders the passage of the instrument very easy, and if the breach which is made, be of any tolerable size, I am inclined to think  
that

that it never is filled up again by bone, but that when it is closed, it is by the membrane; and therefore it is the surgeon's business to make a pretty large opening in the bone, and to prevent its being closed again, by rendering the edges of the membrane on each side of it callous.

To make this opening, many different instruments have been devised, and used, a large strong probe, an instrument like a common gimblet, a curved trocar, &c. &c. each of which, if dextrously and properly applied, will do the business very well; the one necessary caution is, so to apply whatever instrument is used, that it may pierce thro' that part of the bone which lies immediately behind the sacculus lachrymalis, and not to push up too far into the nose for fear of injuring the os spongiosum behind, while it breaks its way.

For my own part I have always used the curved trocar, which has served my purpose well, and from which I have never experienced any inconvenience; in using it the point should be turned obliquely downward, from the angle of the eye toward the inside of the nose; the accomplishment of the breach will be known by the discharge



charge of blood from the nostril, and of air from the wound upon blowing the nose. The most precise direction in this part of the operation will be of but little use to him who has no idea of the natural structure and disposition of the parts concerned, and who ought therefore to get such information as soon as he can; but whoever is at all acquainted with this matter, or will attend to the situation and connection of the os unguis, knows that this bone is divided into two parts by a perpendicular ridge, that the lachrymal sac is connected to all that part which is anterior to this ridge, and that the posterior part of the bone contributes to form the orbit of the eye, and has little or no connection with the lachrymal sac; the trocar must be applied therefore to that part of the bone which is anterior to the ridge, and consequently behind the lachrymal bag; by the passage of the instrument, all this part of the bone will in all probability be broken, but from which no mischief will ensue.

An attention to the natural situation of these parts will also show the practitioner, that if the point of his instrument be passed in a transverse direction with regard to the  
nose,

nose, the os spongiosum superius will be unnecessarily wounded or broken, and if it goes in too perpendicular a direction, it may get into the channel of the natural duct, and its point will be stopped by bearing against that part of the maxilla superior which contributes to the formation of that channel.

It has been objected to the trocar, that it may break the os unguis to some distance from the place where its immediate point is fixed; to which I can only answer, that I have performed the operation a great number of times, and never yet have seen any inconvenience to arise from it; indeed a total removal of a small piece of the bone would be a thing rather to be wished for than avoided; if we may reason by analogy, it seems to be a necessary requisite toward preserving a future passage; for we very well know in a caries of the bones forming the roof of the mouth, that they are sometimes bare for a large compass, and by casting off leave a considerable aperture into the nose; yet in many cases, when the virus is removed, and the habit recruited, that opening will so contract as not to suffer a small quill to pass where you might have



have introduced your finger, nay often will quite close; and therefore tho' the opening made in the os unguis may possibly in spite of all endeavours be again closed up, yet a free breach in it seems to be the most likely means to prevent it; and upon this principle I have always turned the perforator round very freely whenever I have used it, have never seen any mischief from it, and do attribute the success I have had with it, in some measure to this method of using it.

As soon as the perforation is made, a tent of lint should be introduced, of such size as to fill the aperture, and so long as to pass thro' it into the cavity of the nose; this should be permitted to remain in two, three, or four days, till the suppuration of the parts renders its extraction easy, and after that a fresh one should be passed every day, until the clean granulating appearance of the fore makes it probable that the edges of the divided membrane are in the same state: the business now is to prevent the incarnation from closing the orifice, for which purpose the end of the tent may be moistened with spir. vitriol. ten. or a piece of lunar caustic so included in a quill, as to leave little

more than the extremity naked, may at each dressing, or every other, or every third day be introduced, by which the granulation will be repressed, and the opening maintained ; and when this has been done for some little time, a piece of bougie of proper size, or a leaden cannula may be introduced instead of the tent, and leaving off all other dressing, the sore may be suffered to contract as much as the bougie will permit, which should be of such length, that one extremity of it may lie level with the skin in the corner of the eye, and the other be within the nose.

The longer time the patient can be prevailed upon to wear the bougie, the more likely will be the continuance of the opening; and when it is withdrawn, the external orifice should be covered only by a superficial pledget, or plaster, and suffered to heal under moderate pressure.

There is another method which has been much recommended by some French writers to prevent the closing of the opening in the os unguis, which is, to introduce a cannula either of gold, or silver, or lead into the aperture ; and to permit the sore to heal over it, suffering the cannula to remain, or to come away by the nose.

For



For my own part I cannot say any thing to it, having never had occasion to try it; the cases of this kind which I have had under my direction, having generally succeeded under some of the methods already mentioned; which methods will frequently prove successful, if the surgeon is clear in his intention, pursues it steadily, and properly, and refrains from doing too much: tho' I must again repeat what I have said before, viz. that there is no method of treating this disorder which is infallible, none that will absolutely and in all cases prevent a return, especially in scrophulous habits; yet when a just distinction is made between those cases which are in their own nature incapable of cure, and those which by being improperly treated are not cured, I am inclined to believe, that the number of the former will be found much smaller, than it is generally imagined to be.

F I N I S.